Fixed or Barrage Fishing

The term "barrage" is currently applied to a type of fish trap used in the Gulf of Siam. It comprises a kidney-shaped, elliptical enclosure consisting of pilings and wattle. Rows of stakes, designed to obstruct the passage of the fish, converge on the trap.

This type of trap is peculiar to the Gulf of Siam and is also found along the coasts of Malaya, Siam and Cambodia, where muddy bottoms permit the sinking of pilings. This would not be possible for instance, along the coast of Annam.

Structure of the Trap

Barrages are placed in depths of 10 to 16 meters, a few miles offshore. They consist of three distinct parts:

a) the stake rows

b) the false trap (fausse chambre)

c) the trap (chambre de capture)

a) the stake rows

There are 5 rows:

1. A medial row (a) 500 to 1,600 meters long set at right angles to the shore, and 60 meters from the entrance to the false trap.

2. Two lateral, symmetrical rows (c) and (c'), 150 to 170 meters in length, set at 25° to the right and left of the imaginary extended line of the medial row, and at a distance of 15 meters from the entrance to the false trap.

3. Two lateral, symmetrical rows (b) and (b'), 70 meters in length, roughly paralleling (c) and (c') but joining with the false trap and forming its corridor.

The purpose of the medial row is to block the passage of the fish and to canalize them into the trap. The lengths of the various rows vary with the distance from land, but most often are determined by the fisherman's available funds.

The stakes are of Tram (Myrtaceae) wood, averaging 8 centimeters in diameter and are 8 to 18 meters long depending on the water's depth. These stakes are driven in by hand at intervals of one meter. Provided

the sea is calm, a single fisherman can set 80 stakes in a day's time.

b) the false trap

The false trap is in the general form of an isosceles triangle, with a base of 20 meters and a height of 30 meters, the vertex pointed towards the trap. There is an opening in the middle portion of the base of the triangle, the sides converging in an arch. The opening is 4.5 meters wide, with rows (b) and (b') stemming from the sides of this opening.

This false trap does not have any wattling, but consists only of stakes set ½ meter apart. The purpose of this enclosure is to direct the fish gradually into the actual trap without frightening them. Even if some of the fish reverse direction after entering the false trap, they come up against the two arcs formed by the converging sides and sooner or later end up by entering the trap. However the false trap is not indispensable and many fishermen do not construct one.

c) the trap

The trap has the general form of an ellipse, or more exactly, of an extrados, with its entrance at the vertex of the false trap. The trap measures 50 to 55 meters across its widest portion and 20 meters across its shortest depth.

This type of barrage, of Chinese origin, is found throughout the Far East.

Because of its form, the fish enter the trap unknowingly. The elliptical form is also necessary for the eventual netting of the fish in the trap.

Construction and Installation

In order to install a barrage, the ellipse is first marked out with tram pilings - wild areca palm trees which abound in the wooded islands and along the seashore. These pilings are 12 to 18 meters long and 12 to 15 centimeters in diameter. A trap requires 140 pilings.

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The weave is loose with openings of 15 centimeters square.. This might seem unusual but the fish will not escape through these openings because the shadow of the wattling agitated by the waves is sufficient to frighten them.

The trap is made up of sections of wattle 12 by 5 meters. It requires 27 sections to enclose the trap. These sections are attached vertically to the pilings by means of the 'little rattan' (May Ra) and for greater strength, the wattle is alternately woven in and out of the pilings. The whole framework is tied together by rows of transverse Tram bars at the rate of a row every two meters.

It takes 15 days to install a complete barrage with 5 coolies and an 8 ton boat.

Net (Luoi nor)

The net used to catch the fish in the trap is made of ramie and measures 34 meters in length and 10 meters in height. The mesh is very fine - 1½ centimeters-and the strands are 2 millimeters thick. The rectangular net is bordered on all sides with a reinforcing band 10 centimeters wide, of triple standing and with a mesh of 3½ centimeters.

The net is equipped at its surface edge with wood floats (20 x 10 x 6 centimeters) set very close together in order to support the heavy net.

The lower edge is ballasted with copper rings (anneaux de cuivre) of 6 centimeters in diameter, with a ring every meter. A rope passes through these rings enabling the net to be drawn together at the bottom during the final netting stage.

The two lesser sides of the rectangle are fitted out with rattan loops (anneau de rotin) of 25 centimeters in diameter, placed at intervals of one meter.

(f) Boats

A boat of 6 to 8 tons is used to transport pilings, stakes, and wattle as well as to work the barrage. These boats are all of the same type: very broad-beamed with a draft of 1½ meters.

For the transporting of stakes, pilings, wattle, 3 large 10 meter wooden beams are attached athwart the boat to provide a framework.

All the boats are recognisable by their tall mast and even more by their vertical bow to which is attached a moveable pole. When this pole is passed through the rattan loops, the net is held vertically under the boat.

Fishing Operation

Schools of 'Plathu' encounter the rows of stakes which frighten ~~tend con-~~ and stop ~~fuse~~ them. Trying to escape they follow the rows which lead them inevitably into the trap. Behind them come all the different kinds of carnivorous fish, including small sharks not over 1.5 meters long, whose fins are prepared for Chinese consumption. It is not unusual, however to find large sharks and rays in the trap.

Fishery workers set out every morning from the shore and proceed to the trap, generally when the tide is best suited for their work. The boat is manned by four fishermen and one overseer or "Tai cong."

The fishing operation is divided into three separate stages.

1st stage

The boat enters the trap and moors at (A). One end of the net is secured at this point by passing a movable pole through the rattan loops, and fastening the pole against the wattle. Both ends of the rope which passes through the copper rings are held in the boat.

Passing the entrance (O) in order to block the fishes' exit, the boat moves along the inner edge of the trap toward (B), spreading the net as it goes.

When the net is spread, a moveable pole is passed through the remaining rattan loops at point (B). The net and rings are pulled to the bottom by a line which passes through a small pulley at the lower end of the pole. The pole is then secured to the prow of the boat.

2nd stage

With the net well extended, pole (A) now serves as an axis while pole (B) describes a parabola along the wattle enclosure. As the boat moves along the inner edge of the trap, the fishermen keep the prow against the wattle with the aid of the boat hooks.

The fish are thus driven together.

3rd stage

The boat takes half an hour to go all the way around the trap. When it

has returned to (A), the fish are amassed in the net. By drawing on the two ends of the rope which have been kept in the boat, the net is closed at the bottom. The poles are then drawn up and the rattan loops slipped off. The fish are thus left in a pocket which is gradually hauled up between the wattle fence and the boat.

The fish are caught with baskets and dip-nets as in the case of a mandrague.

A trap will occasionally hold up to 20 tons of fish of all kinds. The average daily catch is generally 2 tons, 100 tons per season.

The Fishery and Its Equipment

The fishery consists of all the roofed installations ~~of the roofed installations~~ of the fisherman, ~~whom we call~~ termed a lessee since he pays rent to the state.

The typical fishery is a large bamboo building with a thatched roof, 30 meters long and 15 meters wide. This huge shed is divided by as many partitions of caphen (split bamboo) woven) as necessary. Thus, salt is kept in one compartment, dried fish in another, etc. Drying frames are sometimes laid on the ground, sometimes on piles one meter high for proper ventilation.

Equipment consists of jars to hold shrimp paste, fresh water "nuoc mam" (nitrogenous seasoning) (sic), "prahoe" (fish cheese), etc; "rocoi" rattan baskets for washing the fish; tanks capable of holding up to 1,500 kilograms of fish; and cases in which the dried fish are exported.

Debtors and Creditors

As in the case of fresh water fishing, trade in fish products and by-products is still in the hands of the Chinese.

The Chinese supply the fish hooks, rope and nets, which are brought from China in Chinese junks.

The Chinese make the seasonal loans and it is they who deal with the buyers. Chinese come regularly at the fishing season from Bangkok and Singapore.

It is again the Chinese who, for a consideration, make out the invoices

which the illiterate fishermen would not be able to draw up otherwise, and who label the cases with their content (variety and quantity).

The Chinese handle customs transactions, and change the ticals (Siamese currency) which the fishermen receive, into piasters and then gladly convert the piasters into salt, tanks, rope, empty cases, nails, etc.

The Chinese trader never gives the fisherman more than half the amount due him on any one trip made by the Siamese steamer. By withholding the balance until the following trip he holds the fisherman's trade. The fisherman always has some of his funds in the hands of the Chinese to whom he is thus atomatically tied.

The situation of the fishermen is not unsually [bad] in Cambodia. It can even be said that the Cambodian fishermen are well off compared to the fishermen along the coasts of Annam where fish are less plentiful.

To combat control by the usurious Chinese, the Government General of Indochina has established the Maritime Credit on the basis of information supplied by the ~~fisheries~~ Technical and Economic Section of the Fish [Service].

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